

## UNITED STATES DISTRICT COURT

WESTERN

DISTRICT OF

PENNSYLVANIA

CARNEGIE MELLON UNIVERSITY

V.

MARVELL TECHNOLOGY GROUP, LTD.,  
and MARVELL SEMICONDUCTOR, INC.

## EXHIBIT LIST

Case Number: C.A. 09-290

PRESIDING JUDGE			PLAINTIFFS ATTORNEY			DEFENDANT'S ATTORNEY		
NORA BARRY FISCHER			DOUGLAS GREENSWAG, ESQ., et al.			EDWARD DEFRANCO, ESQ., et al.		
TRIAL DATE (S) 11-28, 11-29, 11-28, 11-29, 11-30, 12-3, 12-4, 12-5, 12-6, 12-10, 12-11, 12-15, Hall; V. Pease			COURT REPORTER:			COURTROOM DEPUTY		
12-13, 12-17, 12-18, 12-19, 12-20, 12-21, 12-26.						J. C ALOVICH		
JT. NO.	PLF. NO.	DEF. NO.	DATE OFFERED	MARKED	ADMITTED	DESCRIPTION OF EXHIBITS		
P-1			11-28-12	✓	✓	U.S. Patent No. 6,201,839.		
P-2			11-28-12	✓	✓	U.S. Patent No. 6,433,180.		
P1912			11-28-12	✓	✓	Summary (via stipulation) of Circuits		
P201			11-28-12	✓	✓	E-mail of 10-24-07 from Sheedy to Brennan		
P209			11-28-12	✓	✓	Presentation: Data Storage Product Manning		
P208			11-28-12	✓	✓	November 2000 Marvell Presentation		
P227			11-28-12	✓	✓	E-mail Exchange between G. Burr & T. Dean		
P240			11-28-12	✓	✓	E-Mail From B. Cooper to N. Nazari (5-11-01)		
P279			11-28-12	✓	✓	E-Mail From G. Burr to T. Dean, re. Han		
P196			11-28-12	✓	✓	Lab Notebooks Notebook No. 00083		
P280			11-28-12	✓	✓	E-Mail from G. Burr to N. Nazari, T. Dean		
P283			11-28-12	✓	✓	E-Mail from G. Burr to T. Dean, et al.		
P285			11-28-12	✓	✓	E-Mail from T. Dean to N. Nazari		
P304			11-28-12	✓	✓	E-Mail from N. Nazari to M. O'Dell		
P310			11-28-12	✓	✓	May, 2002 E-Mail Exchange		
P373			11-28-12	✓	✓	Marvell Presentation title / Memo to Novell Media Processor		
P320			11-28-12	✓	✓	E-Mail from M. O'Dell to B. Brennan		
P607			11-28-12	✓	✓	2-6-07 E-Mail from G. Burr to N. Nazari		
P703			11-28-12	✓	✓	8-8-08 E-Mail from P. Fang		
P770			11-28-12	✓	✓	12-17-09 Marvell Presentation		
•	17	11-28-12	✓	✓	✓	CMU Magnetics Tech Ctr Assoc. Agreement		
•	39	11-28-12	✓	✓	✓	CMU PSSC Assoc. Agreement - CMU/Seagate		

\* Include a notation as to the location of any exhibit not held with the case file or not available because of size.

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PLF. NO.	DEF. NO.	DATE OFFERED	MARKED	ADMITTED	DESCRIPTION OF EXHIBITS
	DX-40	11-28-12	✓	✓	CMU DSSC Associates Agreement to - CMU + Minnesota Mining
	DX-187	11-28-12	✓	✓	U.S. Patent No. 6, 282,251 to Worrell
	DX-210	11-28-12	✓	✓	E-mail RE: "I Love WD" from J. Sheredy
	DX-212	11-28-12	✓	✓	E-mail From Kavic to Moura RE: Patent
	DX-213	11-28-12	✓	✓	E-mail From B. White to Moura
	DX-255	11-28-12	✓	✓	Subscription Agreement - CMU + Intel
	DX-262	11-28-12	✓	✓	E-mail From R. Woldbridge to Akay, et al
	DX-264	11-28-12	✓	✓	E-mail From R. Woldbridge to M. Vank Veldem
	DX-266	11-28-12	✓	✓	U.S. Patent No. 6, 931, 585 to Burd, et al
	DX-272	11-28-12	✓	✓	Spreadsheet - Highly Speculative Streams
	DX-287	11-28-12	✓	✓	U.S. Patent No. 7, 155, 680 to Burd
	DX-310	11-28-12	✓	✓	Article: The Read Channel
	DX-419	11-28-12	✓	✓	La Jolla Feature List
	DX-1023	11-28-12	✓	✓	E-mail From A. Kavic to N. Nazari
	DX-1088	11-28-12	✓	✓	Provisions Application 60/345,725
	DX-1522	11-28-12	✓	✓	Moura handwritten notes
	DX-18	11-28-12	✓	✓	CMU Intellectual Property Policy
	DX-1338	11-28-12	✓	✓	Link re: "Marvell Patent"
P431		11-28-12	✓		Letter to M. Glos from C. Maister 8-5-2003
<del>P125</del>		<del>11-28-12</del>	<del>✓</del>	<del>✓</del>	<del>Letter to R. Sutarajja from C. Maister</del>
P156		11-29-12	✓	✓	3/10/1997 Correspondence re: disclosure of invention to M. Cotrich
P169		11-29-12	✓	✓	May 1998 Article by Kavic/Moura 'Correlation-Synthesis'
P183		11-29-12	✓	✓	Jan 2000 Art. by Kavic/Moura, Viterbi, Aguiar & Markov
	DX-214	11-29-12	✓	✓	Email A1303 Moura to Kavic re: Moura-Kavic Algorithm
	DX-1522	11-29-12	✓	✓	5/16/01 handwritten notes of Dr. Moura
	DX-212	11-29-12	✓	✓	Email from Kavic to Moura re: Patent (already admitted)

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PLF. NO.	DEF. NO.	DATE OFFERED	MARKED	ADMITTED	DESCRIPTION OF EXHIBITS
	DX 246	11-29-12	✓	✓	7/6/04 Email from Kavcic to Moura re: need to talk to you
	DX 306	11-29-12	✓	✓	6/08 Email from Kavcic to Moura et al.
	DX 263	11-29-12	✓	✓	11/5/05 Email from Kavcic to Moura
	DX 337	11-29-12	✓		Print out of Moura 2012 website
321	DX 321	11-29-12	✓		Print out of Moura 2010 website
	DP 1	11-29-12	✓	✓	# <del>80</del> <sup>63</sup> XXX AddMMP - Physical Exhibit 1
	DP 2	11-29-12	✓	✓	# <del>80</del> <sup>63</sup> XXX 13 - Physical Exhibit 2
	DX 189	11-30-12	✓	✓	10/8/01 email from Kavcic to Moura, H. Mendez
	DX 1023	11-30-12	✓		(Already in evidence -)
	DX 4	11-30-12	✓		Article: Target ISI length by Kavcic (Portion admitted)
P 422		11-30-12	✓	✓	8/5/03 Letter from CNA (Mehler) to Marvell (Sutcliffe)
	DX 1390	11-30-12	✓	✓	Kavcic Ex 27 code.
	DX 63	11-30-12	✓	✓	Article: Matched Model Detection in HD Recording by Kavcic
P 377		11-30-12	✓	✓	2/1/03 March 2003 email exchange b/w W + Kavcic
P 444		11-30-12	✓	✓	E-mail from B. Cooper to A. Iliazari
P 497		11-30-12	✓	✓	Board of Directors Mtg. Data Storage Marketing 3/19/02
P 440		11-30-12	✓	✓	- Already Admitted 11-28-12
P 331		11-30-12	✓	✓	Data Storage Weekly Status Rpt. 8-12-02
P 333		11-30-12	✓	✓	Data Storage Weekly Status Rpt. 8-19-02
P 93		12-3-12	✓	✓	KavcicViterbi.cpp
P 110		12-3-12	✓	✓	KavcicPP.cpp
P 368		12-3-12	✓	✓	E-mail Re: Usage instructions dated 1-21-03
P 472		12-3-12	✓	✓	88C75CCM v. 2.0 Trellis Code Noise Processor
P 823		12-3-12	✓	✓	"Chip Strip" (Oct. 1993)
P 408		12-3-12	✓	✓	"media Noise Processor" by G. Burd
P 366		12-3-12	✓	✓	E-mail from Z-Ning Wu to T. Poon (1-17-03)
P 596		12-3-12	✓	✓	Nonlinear Viterbi Detector App. Note (12-13-00)



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PLF. NO.	DEF. NO.	DATE OFFERED	MARKED	ADMITTED	DESCRIPTION OF EXHIBITS
P-106		12-3-12	✓	✓	NLViterbi.cpp
P-99		12-3-12	✓	✓	mnpBank.cpp
P-89		12-3-12	✓	✓	emnpBank.cpp
<del>P-93</del>		<del>12-3-12</del>	<del>✓</del>	<del>✓</del>	<del>emnpBank.cpp</del>
P-527		12-3-12	✓	✓	Marvell presentation Analysis-Design of Viterbi Decoder
P-341		12-3-12	✓	✓	E-Mail dated 9-19-02
P-1918		12-3-12	✓	✓	"Marvell instructs its customers how to use accused MNP-NLD chips in infringing products"
P-1919			✓	✓	"Programming Instructions for NLD Type"
P-1914		12-3-12	✓	✓	Summary of "Bundle of E-Mail."
P-1915		12-3-12	✓	✓	Summary of info. on NLD Type Chips
P-1910		12-3-12	✓	✓	STG_YUKON Channel Parameter File
P-1913		12-3-12	✓	✓	Firmware Summary Chart (MNP Type Chips)
P-1918		12-3-12	✓	✓	12-28-01 E-Mail from G. Burel to T. Pern, et al.
P-1915		12-3-12	✓	✓	10-13-00 E-Mail to A. Vityaev et al. from N. Nizami
P-1915		12-3-12	✓	✓	Non-Linear Single Bit Per Processor by G. Burel
P-108		12-3-12	✓	✓	Marvell Bank.cpp
P-932		12-3-12	✓	✓	8818045 R2.0 Intranet New Link Register
P-314		12-4-12	✓	✓	Presentation channel technology meeting WD/Marvell dated 6-7-02
P-328		12-4-12	✓	✓	E-Mail from Masa Okawa to Bill Brennan (8-10-02)
P-406		12-4-12	✓	✓	E-Mail from S. Huang to Z. Wu, et al.
P-1918		12-4-12	✓	✓	Use of MNP-Type chips or Simulators chart
P-1917		12-4-12	✓	✓	Chart-Use of NLD-Type chips or Simulators
P-1920		12-4-12	✓	✓	Chart-Marvell's Instructions/Recommendations re NLD chips
P-1922		12-4-12	✓	✓	Chart-Marvell's Instructions/Recommendations re NLD chips
P-506		12-4-12	✓	✓	E-Mail from T. Pern to T. Pern, et al.
P-198		12-4-12	✓	✓	6-23-00 Marvell Tech. Group Ltd. S-I Registration Statement.

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PLF. NO.	DEF. NO.	DATE OFFERED	MARKED	ADMITTED	DESCRIPTION OF EXHIBITS
P-503		12-4-12	✓	✓	E-Mail RE: Summary of Samsung Mtg. (2-1-07)
P-563		12-4-12	✓	✓	Nonlinear Viterbi Design Specifications by H. Song (5-9-00)
P-289		12-4-12	✓	✓	E-Mail from G. Buval to P. Dunn, et al (1-18-02)
P-308		12-4-12	✓	✓	Outline RE: Detection in Presence of Media Noise (5-7-02)
PX-231		12-4-12	✓	✓	Letter from C. Mohler to H. Kulkarni.
PX-235		12-4-12	✓	✓	Letter from C. Mohler to P. Alexopoulos
PX-230		12-4-12	✓	✓	Letter from C. Mohler to Mark So-Lee
PX-226		12-4-12	✓	✓	CMU Letter to Western Digital
PX-224		12-4-12	✓	✓	CMU Letter to Hitachi
PX-225		12-4-12	✓	✓	CMU Letter to Toshiba
P-306					Data Storage Weekly Status Rpt.
P-851			✓		Schedule 24* Aug 2003* Chip Family Not Recorded
PX-218			✓	✓	E-Mail RE: "La Jolla" NLT from Brad Cooper and attachments on La Jolla Patent List.
PX-1537			✓	✓	Marvell Data Storage Weekly Status Rpt. for week ending 6-11-03.
[REDACTED]					
P-891			✓	✓	E-Mail from M. O'Reilly to B. Brennan & P. Yasuda
PX-1141			✓	✓	Toshiba / HAST Concerns
P-730			✓	✓	Ref: In yea Repo - S16 Yukon Parameters File
P-729			✓	✓	Ref: In yea Repo - STE-ABTC Channel Param File
P-728			✓	✓	Ref: In yea Repo - PLUTC Channel Param. File
P-758			✓	✓	Ref: In yea Repo - 88,9045 P210 - Specifications
P-648			✓	✓	Ref: In yea Repo - Yosemite Channel Param File
P-571			✓	✓	Ref: In yea Repo - Nites Channel Param. File
P-633			✓	✓	Ref: In yea Repo - McKinty Channel Param. File
P-710			✓	✓	Ref: In yea Repo - E-Mail from Wang
P-529			✓	✓	Ref: In yea Repo - Marvell presentation

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PLF NO.	DEF NO.	DATE OFFERED	MARKED	ADMITTED	
P-1133		12-5-12	✓	✓	National Science & Technology Strategies in a Global Context Rpt of an Intl Symposium, etc.
P-161		12-5-12	✓	✓	E-mail exchange between M. Kuyatert & C. Porto (4-29-97)
	DX 1602	12-5-12	✓	✓	Marvell Seagate Design Review
	DX 182	12-5-12	✓	✓	DSSC Letter to Seagate
	DX 1601	12-5-12	✓	✓	Article - Interview of Dr. Knudsen-Suenbhi
	DX 1084		✓		Innovation Transfer Center Annual Report for Fiscal Year 2002. (American)
	DX 227	12-5-12	✓	✓	Letter from C. Mahler to D. Takashima
	DX 229	12-5-12	✓	✓	Letter from C. Mahler to Dr. P. Barni
	DX 232	12-5-12	✓	✓	Letter from C. Mahler to F. Kamann
	DX 233	12-5-12	✓	✓	Letter from C. Mahler to J. Best
	DX 234	12-5-12	✓	✓	Letter from C. Mahler to P. Alexopoulos
	DX 273	12-5-12	✓	✓	Letter from Mahler to Alexis Lee: Re: Patent License
P-731		12-5-12	✓	✓	Letter from C. Mahler to M. Glass
	DX 1604	12-5-12	✓	✓	Letter dated 3-7-95 to Dr. Christiano
	DX 350	12-18-12	✓		CMU University Missions (revised 12-18-12)
	DX 1605	12-5-12	✓	✓	CMU Policies/Procedures
	DX 273				E-mail from R. Wadbridge to C. Mahler Re: Highly Speculative v.l.c. 1-16-06-2-15
	DX 299	12-5-12	✓	✓	E-mail from B. Mullholland to D. Jesionowski, et al.
	DX 1552	12-5-12	✓	✓	E-mail from R. Wadbridge to B. Mullholland et al.
	DX 305	12-5-12	✓	✓	E-mail from T. Branstad to R. Wadbridge
	DX 1606	12-5-12	✓	✓	Letter to Dr. Christiano dated 11-11-93
P-198					From Armstrong Video Dept - Not Identified
P-220		12-5-12	✓	✓	From Armstrong Video Dept - Marvell Press Release
P-651		12-5-12	✓	✓	From Armstrong Video Dept - News Release 6-17-10
P-477		12-5-12	✓	✓	From Armstrong Video Dept - Letter to Marvell from J. Sunnamai
P-197		12-5-12	✓	✓	From Armstrong Video Dept - License Agreement 4-28-00



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PLF. NO.	DEF. NO.	DATE OFFERED	MARKED	ADMITTED	DESCRIPTION OF EXHIBITS
P 1270		12-7-12	✓	✓	marvell presentation: Board of Directors meeting Data Storage Sales (12-4-00)
P 257		12-7-12	✓	✓	October 2, 2001 Data Storage Weekly Status Rpt.
P 935		12-7-12	✓	✓	Board of Directors Mgt. Rpt. (8-20-01)
P 358					marvell presentation titled "ESMT-2001" (12-7-12)
P 1204		12-7-12	✓	✓	Marvell Presentation: Marvell + JFS Data Storage
P 218		12-7-12	✓	✓	marvell presentation: Security Quarterly Review
P 938		12-7-12	✓	✓	Stipulation of Counsel (12-2-12)
P 433		12-10-12	✓	✓	Data Storage Weekly Status Report for week ending 8-8-03.
P 281		12-10-12	✓	✓	From T. Dean Deft - E Mail From T. Dean Deft (1-3-02)
P 938		12-11-12	✓	✓	Stipulation of Counsel (Reading record by G.)
P 295		12-11-12	✓	✓	marvell presentation - C5575.M/C7500M media Noise Detector Design Review
P 1701		12-11-12	✓	✓	Signal Processing Update (6-20-07)
P 363		12-11-12	✓	✓	E Mail from B. Cappel to M. Mandler (12-20-02)
P 919		12-11-12	✓	✓	Data Weekly Status Rpt. Sales
P 36					marvell presentation - High Performance Silicon Solutions for Broadband Comm. Applications
PX 1511		12-11-12	✓	✓	marvell Corporation update (Pgs. 1010555 + 1010556)
PX 1535		12-11-12	✓	✓	HGST/Marvell Technology Mtn (3-10-03)
PX 1528		12-11-12	✓	✓	marvell presentation: Enterprise Channel Mgt. Strategy (ES6/Marvell) (3-17-03) (1981955 + 1981956)
PX 1554		12-11-12	✓	✓	marvell presentation - Signal Processing Update
PX 1571		12-11-12	✓	✓	SEC Product Technology Update Hiroshi Presentation (Pgs 5-13)
PX 193		12-11-12	✓	✓	YC5575.M/C7500M media Noise Detector Design Review
PX 37		12-11-12	✓	✓	Lee + C. 088: "Performance Analysis" Paper
PX 38		12-11-12	✓	✓	Zeng + Moon: "Medicated Virology" Paper
P 857		12-12-12	✓	✓	Pages from website of Mr. Hoffman
PX 1607		12-12-12	✓	✓	List of matters reviewed by Mr. Hoffman
P 829		12-12-12	✓	✓	Article by Creighton Hoffman w/ P. Green

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PLF. NO.	DIFF. NO.	DATE OFFERED	MARKED	ADMITTED	DESCRIPTION OF EXHIBITS
	DX-1608	12-13-12	✓		Report of Mr. H. Bonam - Accused Non-Accused
	DX-1609	12-13-12	✓		Exhibit for Mr. H. Bonam Rpt. - Exh. E. - "Product Volume"
	DX-1610	12-13-12	✓	✓	Chart of Ms. Lawton - (Schedule 38)
	DX-185	12-13-12	✓	✓	PSSC LETTER to IBM
	DX-1559	12-13-12	✓	✓	Email from S. Lin to C. Vance, et al (5-1-03)
	DX-1560	12-13-12	✓	✓	Email Attachment - g3mnp gain.xls
P 882		12-13-12	✓	✓	Email from N. Nazari to I. Bagai
P 950					was not identified
P 925			✓		Expert Rpt. of R. Blahut
	DX-340	12-17-12	✓	✓	File History of U.S. Patent No. 6,201,839
	DX-341	12-17-12	✓	✓	File History of U.S. Patent No. 6,438,180
	DX-1060	12-17-12	✓	✓	Email from G. Bural to T. Dean
	DX-1075	12-17-12	✓	✓	Bural Media Noise Post Processor
	DX-1079	12-17-12	✓		Email from G. Bural to Nazari (re: Med. Noise Detec)
P 872					File History for U.S. Patent No. 6,331,585
P 198		12-19-12	✓	✓	6-23-00 Reg. 15. Statements
		12-19-12	✓	✓	Joint Exhibit A Transcript of Depo. Designation of William Brenner (played 11/30/12)
		12-19-12	✓	✓	Joint Exhibit B: Transcript of Depo. Designation of Tek. Geo (played 12-4-12)
		12-19-12	✓	✓	Joint Exhibit C: Transcript of Depo. Designation of Alan Armstrong (played 12/5/12)
		12-19-12	✓	✓	Joint Exhibit D-1: Transcript of Depo. Designation of Tom Doan (played 12/10/12)
		12-19-12	✓	✓	Joint Exhibit D-2: Transcript of Depo. Designation of Tom Doan (played 12/10/12)